

2007-1146
(Serial No. 10/064,380)

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

IN RE MICHAEL L. BEIGEL, NATHANIEL POLISH,
STEVEN R. FRANK, and ROBERT E. MALM

Appeal From The United States Patent and Trademark Office,
Board Of Patent Appeals And Interferences

REPLY BRIEF FOR APPELLANT

Attorney for the Appellant

ROBERT E. MALM
16624 PEQUENO PLACE
PACIFIC PALISADES, CALIFORNIA

Telephone: 310 573-1781

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INTRODUCTION

Appellants' invention is claimed by combinations of the following limitations in six claims. Appellants' Brief, Statement of the Facts, pp. 3-13.

- ***reader embedding bit-timing clock signal in alternating magnetic field*** - (a limitation included in claims 70, 71, 75, 47, 56);

This limitation corresponds to Step 2 of the Statement of Facts. There is no disclosure of this limitation in Carroll et al.

- ***tag generating bit-timing clock signal synchronized with embedded bit-timing clock signal*** - (a limitation included in claims 71, 75, 47, 56);

This limitation corresponds to Steps 3, 4, and 5 of the Statement of Facts. Carroll et al. discloses generating a bit-timing clock signal but does not disclose this signal being synchronized with a bit timing clock signal embedded in the reader's alternating magnetic field.

- ***tag extracting data from reader's alternating magnetic field utilizing tag's bit-timing clock signal that is synchronized to the embedded bit-timing clock signal*** - (a limitation of claim 47);

This limitation corresponds to Step 6 of the Statement of Facts. Carroll et al. does not disclose this limitation.

- ***tag embedding data in tag's alternating magnetic field in accordance with bit-timing clock signal synchronized with embedded bit-timing clock signal***

- (a limitation of claims 71, 75, 56);

This limitation corresponds to Step 8 of the Statement of Facts. Carroll et al. does not disclose the portion of the limitation "in accordance with bit-timing clock signal synchronized with embedded bit-timing clock signal."

- ***tag embedding data by causing the phase of the alternating magnetic field to have a first phase when a "0" is being transmitted and a second phase when a "1" is being transmitted*** - (a limitation of claim 57).

This limitation has to do with a specific modulation technique for embedding data in the tag's alternating magnetic field (see Step 8 of the Statement of Facts). This modulation technique is not disclosed by Carroll et al.

- ***reader extracting data from tag's alternating magnetic field utilizing reader-generated bit-timing clock signal*** - (a limitation of claim 71).

This limitation corresponds to Step 10 of the Statement of Facts. Carroll et al. discloses extracting data from a tag's alternating magnetic field utilizing an accompanying bit-timing clock signal embedded by the tag in its alternating magnetic field rather than utilizing a bit-timing clock signal generated by the reader.

The reader embedding bit-timing clock signal in alternating magnetic field is the key limitation which provides the foundation for all of the other limitations.

Appellants' Brief provides arguments as to the patentability of each of the appealed claims in terms of the limitations above contained in each of the claims. Appellants' arguments include the positions taken by the Examiner and the Board in rejecting the claims and Appellants' rebuttals to these positions.

Appellee has chosen to respond to only the first and the last of the above limitations. Appellee has chosen not to argue the obviousness of claims 47, 56, and 57.

REPLIES TO APPELLEE'S ARGUMENTS

APPELLEE'S BRIEF III (pp. 4-20)

The theme of Appellee's Brief is that Appellants' arguments are essentially that Carroll et al.'s bit-timing clock signals do not originate in Carroll et al.'s reader and therefore do not disclose the "bit-timing clock signal" limitations of the claims:

- the appealed claims "are not limited to **bit-timing signals *originating at the reader.***" Appellee's Brief, p. 7;
- "the Board maintained the rejection of method claims 70, 71, and 75 because it construed those claims as not limited to a **bit-timing clock signal originating with the reader.**" Appellee's Brief, p. 9;
- "the Board concluded that other rejected claims did require the **bit-timing clock signal to originate with the reader.**" Appellee's Brief, p. 10;
- "the Board reiterated its earlier conclusions that those claims are not limited to methods where the **bit-timing clock signal originates with the tag.**" Appellee's Brief, p. 11;
- "That teaching falls within the scope of Beigel's claims because none of those claims are limited . . . to methods where the **bit-timing control signal originates with the reader.**" Appellee's Brief, p. 13;
- "no preamble language at issue narrows Beigel's broad claims to require the

bit-timing signal to originate with the reader." Appellee's Brief, p. 13

Appellee, following in the steps of the Board, misstates Appellants' arguments. Appellants arguments are that Carroll et al. does not disclose the embedding of a bit-timing clock signal (whatever its origin) in the alternating field generated by the reader. Appellants never argue that the bit-timing clock signal embedded by the reader in the alternating magnetic field must be generated by the reader.

Somehow the Board came to the conclusion that Appellants' were arguing that the bit-timing clock must be generated by the reader:

"Appellants reiterate their contention that Carroll does not disclose the embedding of a bit-timing clock signal in the alternating magnetic field generated at the reader. For all of the reasons discussed previously, we find such argument to be unpersuasive since there is no claimed requirement that the bit-timing clock signal originate at the reader." Decision on Appeal, A15.

In view of this mistaken view of Appellants' arguments by the Board (and Appellee), Appellants wish to emphasize that the claim language does not limit the origin of the bit-timing clock signal and Appellants' arguments do not assume that the origin of the bit-timing clock signal is limited to the reader. Appellants also wish to emphasize that the act of embedding a bit-timing clock signal in an alternating magnetic field generated by the reader is an act that can only be performed by the reader.

APPELLEE'S BRIEF III (B) (pp. 8-9)

In discussing Carroll et al., Appellee states:

"Thus, in Carroll's disclosed system, the reader produces a synchronization block, which is included in subsequent communications between the tag and reader." Appellee's Brief, p. 9.

It should be emphasized that the "sync block" shown in Fig. 4B (backside of Appellee's p. 8) does NOT cause a bit-timing clock signal to be embedded in the reader's alternating magnetic field. See Appellants' Brief, pp. 11-12 for a detailed explanation. The only function performed by the Fig. 4B sync block 114 is to provide four bit-periods of unmodulated carrier prior to the arrival of the message start bit 116. As a result, the message start bit 116 can be easily recognized by the tag.

APPELLEE'S BRIEF III (C) (pp. 9-11)

Appellee states:

"As to the anticipation rejection, Beigel argued that Carroll differs from the claimed invention because Carroll's bit-timing clock signal is sent from the tag to the reader, while the claims at issue (according to Beigel) require the bit-timing clock signal to be sent from the reader to the tag." Appellee's Brief, p. 9.

Appellee incorrectly states Appellants' argument. Appellants have consistently argued through both the examination and the appeal process that the claims at issue require:

embedding a bit-timing clock signal in the alternating magnetic field (claim 70, see Appellants' Brief, pp. 19-29)

generating an alternating magnetic field in which the bit-timing clock signal is embedded (Claim 71, see Appellants' Brief, p. 40)

a bit-timing signal being embedded in the alternating magnetic field by the reader (Claim 75, see Appellants' Brief, p. 45)

APPELLEE'S BRIEF V (B) (pp. 15-16)

Appellee argues that the fact that claims 70, 71, and 75 were 102(e) rejections and claims 47, 56, and 57 were 103(a) rejections "is not relevant to this appeal" because "claims 47 and 56 recite a particular circuit component, a capacitor, not shown by Carroll." Appellee's Brief, p. 15-16.

The capacitor IS shown by Carroll et al. and this is acknowledged in Appellants' Brief where the capacitor is a non-highlighted limitation in the claims (see pages 50-51, 54). The existence of a capacitor in Carroll et al. was never questioned during the examination of the application. If the capacitor had been absent from Carroll et al.'s invention and the examiner had cited no other references, how could the examiner have supported either anticipation or obviousness rejections for these claims?

Appellee states that "Beigel [Appellants] does not argue that aspect of the obviousness rejection. Appellees' Brief, p. 16. Appellants argue nonobviousness but the capacitor element in the claims has no role to play in that argument.

Appellants' have continually pointed out to the examiner during examination and to the Board during the appeal process that neither the examiner nor the Board has provided any rationale as to why a person skilled in the art would be motivated to incorporate the highlighted limitations of claims 47, 56, and 57 in the Carroll et

al. invention. (Please see Appellants' Brief, pp. 53, 56, and 57.) Rather than providing such an argument, Appellee erroneously claims that the existence of the capacitor somehow makes it unnecessary to establish the three prongs required for obviousness rejections.

Appellee also argues that "Beigel confines his arguments on appeal to the existence of a bit-timing control signal sent from Carroll's reader." Appellee's Brief, p. 16. Appellee is incorrect. Appellants' argue that Carroll et al. fails to disclose any of six different limitations, one of which is a key limitation which provides the foundation for the others. Providing a foundation does not mean the other limitations follow from the key limitation.

Appellee argues that "while Beigel argues each of his five independent claims separately, and quotes numerous claim limitations, his arguments as to all the claims and the quoted limitations reduce largely to the single question of whether Carroll's reader transmits a bit-timing control signal in accordance with the claims."

The Appellee is incorrect as the reader will discover from reading Appellants' Brief. Appellants argue each of the six limitations separately and the arguments do not "reduce largely to the single question of whether Carroll's reader transmits a bit-timing control signal." As a simple illustration of the need to argue each of the limitations, consider the key limitation and a second limitation:

- *[key limitation] reader embedding bit-timing clock signal in alternating magnetic field;*
- *[second limitation] tag generating bit-timing clock signal synchronized with embedded bit-timing clock signal.*

The key limitation refers to an embedded bit-timing clock signal. The second limitation refers to two bit-timing clock signals: (1) an embedded bit-timing clock signal and (2) a generated bit-timing signal. Neither the Examiner nor the Board nor Appellee has pointed out the existence of TWO bit-timing clock signals in Carroll et al.'s tag.

APPELLEE'S BRIEF V(B)(1) (pp. 16-20)

The subject matter of Appellee's argument is the following limitation which appears in claims 70, 71, 75, 47, and 56

- *reader embedding bit-timing clock signal in alternating magnetic field*

The limitation specifies the action party as being the reader and the action performed by the reader as embedding a bit-timing clock signal in an alternating magnetic field. "Embedding" means incorporating "something" in "something else" as, for example, embedding stones in concrete. The embedded "something" remains distinguishable from the "something else" and presumably could be separated or extracted from the "something else". A "clock signal" is understood by persons skilled in the art as being a periodic signal having transitions which can be used to trigger regularly-occurring actions. A "bit-timing clock signal" would be understood by a person skilled in the art as being a clock signal whose transitions mark the start times of the bits in a sequence of bits.

The normal procedure in determining whether Carroll et al. discloses this limitation would be to examine the description of Carroll et al.'s reader and look for three things:

- the availability of an alternating magnetic field in Carroll et al.'s reader;
- the availability of a bit-timing clock signal in Carroll et al.'s reader; and
- the act of embedding the bit-timing clock signal in the alternating magnetic

field.

Only the first of these three essential ingredients for disclosure is described in Carroll et al.

Appellee, unable to point to disclosures of the three ingredients itemized above in Carroll et al., argues that acts performed by Carroll et al.'s tag imply the performance of the act specified in the limitation by Carroll et al.'s reader.

An examination of Carroll et al. reveals a meticulously thorough and detailed description of Carroll et al.'s invention. It is hard to understand why such an important act performed by the reader would not have been mentioned in Carroll et al.'s description of the reader. Instead, according to Appellee, a person who wanted to practice the Carroll et al. invention would be expected to infer certain portions of the reader design from the disclosure of actions performed by the tag.

Carroll et al.'s ignoring of such an important act of the reader in their description of the operation of their reader is so unlikely, Appellee's argument that a critical reader act is revealed by subsequent acts performed by the tag should be viewed with some caution.

The substance of Appellee's argument is succinctly stated at the beginning of the last paragraph on page 18 of Appellee's Brief:

"The Board explained that Carroll's elements 58, 60, and 64, A842, Fig 3,

divide down the alternating field sent from Carroll's reader to the tag, resulting in a bit-timing control signal [Q6 generated by timing control circuit 60]."

The problem with Appellee's argument is that a hypothetical bit-timing clock signal embedded by Carroll et al.'s reader in the alternating magnetic field created by Carroll et al.'s reader would not be the equivalent of Carroll et al.'s bit-timing clock signal Q6 generated by timing control circuit 60. Even though Carroll et al.'s tag generates bit-timing clock Q6 having the same frequency as a hypothetical bit-timing clock signal embedded by Carroll et al.'s reader in its alternating magnetic field, it would not have coinciding transitions marking the start-times of the bits.

The reasons why Carroll et al.'s bit-timing clock signal Q6 generated by timing control circuit 60 cannot be interpreted as being a bit-timing clock signal embedded by Carroll et al.'s reader in its alternating magnetic field are discussed in great detail in Appellant's Appeal Brief, pp. 25 (last paragraph) - 28.

There are some odds and ends in Appellee's argument (pages 16-20) which need to be clarified. Appellee entitles his argument "Carroll's Synchronization Code Sent From the Reader to the Tag is a Bit-timing Control Signal." and then states his agreement with Appellant that "the synchronization block [i.e. Carroll's synchronization code] shown in Carroll's Figure 4B includes a string of four "0"s, and hence a signal having a constant frequency [i.e. alternating magnetic field]"

(Appellee's Brief, p. 19, first two lines). A "signal having a constant frequency" is simply the alternating magnetic field created by Carroll et al.'s reader. It does not have an embedded bit-timing clock signal. An embedded bit-timing clock signal would result in a signal having multiple frequency components.

For a more detailed exposition of the lack of disclosure in Carroll et al. of the limitation "*reader embedding bit-timing clock signal in alternating magnetic field*", please see Appellant's Appeal Brief, pp. 19-29.

APPELLEE'S BRIEF V(B)(2a) (pp. 20-23)

Appellee argues that claims 70, 71, and 75 are not limited to methods where the bit-timing clock signal originates with the reader. Appellee's Brief, p.20.

Insofar as claim 70 is concerned, Appellant has made no such assertion.

Insofar as claim 71 is concerned, the method is limited by the preamble limitation "*the start of each bit being determined by a bit-timing clock signal generated by the tag and synchronized with a bit-timing clock signal originating with the interrogator*".

Insofar as claim 75 is concerned, the Board asserted:

"Appellants reiterate their contention that Carroll does not disclose the embedding of a bit-timing clock signal in the alternating magnetic field generated at the reader. For all of the reasons discussed previously, we find such argument to be unpersuasive since there is no claimed requirement that the bit-timing clock signal originate at the reader." Decision on Appeal, A15.

Appellants responded:

"Appellants have never made the argument alleged by the Board. What appellants' have argued and continue to argue is that Carroll et al. does not disclose is "a bit-timing clock signal being embedded in the alternating magnetic field by the reader." Appellants' Appeal Brief, p. 46.

APPELLEE'S BRIEF V(B)(2b) (pp. 23-26)

Appellee asserts that neither of claims 47 and 56 "includes any preamble language that would exclude Carroll's tags from their respective scopes."

Appellee is incorrect.

Claim 47 is a claim for a tag. The claim-47 preamble limitation *[1] the reader embedding a bit-timing clock signal in the transmitted signals* is not satisfied by Carroll et al.'s reader. Consequently, Carroll et al.'s tag cannot possibly satisfy the claim-47 body limitation *[2] a means [in a tag] for generating a bit-timing clock signal that is synchronized to the bit-timing clock signal embedded in the transmitted signals*. For further information, please see Appellants' Brief, pp. 50-53.

Claim 56 is also a claim for a tag. The claim-56 preamble limitation *[1] the reader transmitting a bit-timing clock signal to the tag* is also not satisfied by Carroll et al.'s reader. Consequently, Carroll et al.'s tag cannot possibly satisfy the claim-56 body limitation *[2] a means [in a tag] for generating a bit-timing clock signal synchronized to the reader bit-timing clock signal*. For further information, please see Appellants' Brief, pp. 54-56.

Appellee also asserts that claim 75 does not include any preamble language that would exclude Carroll et al.'s tag.

Again, Appellee is incorrect.

Claim 75 is a claim for a method for responding to the establishment of an alternating magnetic field by a reader. The claim-75 preamble limitation *[1] a bit-timing signal being embedded in the alternating magnetic field by the reader* is not satisfied by Carroll et al.'s reader. Consequently, Carroll et al.'s tag cannot possibly satisfy the claim-75 body limitation *[2] generating a bit-timing clock signal that is synchronized to the bit-timing clock signal embedded by the reader in the alternating magnetic field*. For further information, please see Appellant's Brief, pp. 44-48.

With regard to claim 71, the only reason given by the Board for not considering the preamble as a claim limitation is that "there is no clear indication or requirement that such a bit-timing clock signal [i.e. the one referred to in the main body of the claim and originating with the interrogator] corresponds to the bit-timing clock signal referenced in the preamble. In other words, the preamble of claim 71 which sets forth a specific manner in which an interrogated tag responds to an interrogation, is a mere intended use of the claimed method of interrogating a tag set forth in the body of the claim." Decision on Appeal, A14.

Appellant contested the Board's conclusion in the Request for Rehearing with the following argument:

"The Board is mistaken. The 'clear indication' is provided in the preamble by referring to the bit-timing clock signal to which the tag-generated bit-timing signal is synchronized as 'a bit-timing clock signal originating with the interrogator'.

"The preamble includes information regarding the timing of the bits in the response from a tag and thus places limitations on the acts required to perform the 'extracting data' limitation. For this reason, the preamble cannot be ignored in determining the patentability of claim 71.

"The Board states:

'[T]he claimed clock signal generating feature is met by the encoder (70) in the transponder of Carroll since the body of the claim does not require that the clock signal generation originate at the reader.'

"But if the bit-timing clock signal is generated by the tag, how does the interrogating apparatus perform the step of "generating an alternating magnetic field in which the bit-timing signal is embedded" when a communication link from the tag to the interrogating apparatus has not yet been established?"

Request for Rehearing, A672.

The Board did not respond to this argument in the Decision on Request for Rehearing nor has Appellee in Appellee's Brief.

APPELLEE'S BRIEF V(B)(2c) (pp. 26-30)

Appellee concludes that "the Board's conclusion that the method claims on appeal do not recite step-plus-function limitation should be affirmed because none of those claims include the language "step for" and Because Beigel has failed to establish that the various claim limitations contain no acts." Appellee's Brief, p. 28.

Appellants argued that "the limitation 'embedding a bit-timing clock signal in the alternating magnetic field' should be considered to be a step-plus-function element since 'the element at issue sets forth a step for reaching a particular result, but not the specific technique or procedure used to achieve the result.'" *Caterpillar Inc. v. Detroit Diesel Corp.*, 41 USPQ2d 1876, 1882 (N.D. Ind. 1996) (cited in MPEP § 2181).

Appellee dismissed this argument as amounting "to conclusory statements that the above terms are functions and not acts." Appellee's Brief, p. 28. "Concise" would appear to be a more appropriate descriptor than "conclusory".

The underlying facts are:

- (1) The statute 35 U.S.C. § 112, ¶ 6 "applies to functional method claims where the element at issue sets forth a step for reaching a particular result, but not the specific technique or procedure used to achieve the result." *Caterpillar Inc. v. Detroit Diesel Corp.*, 41 USPQ2d 1876, 1882 (N.D. Ind.

1996) (cited in MPEP § 2181); and

(2) The element at issue "embedding a bit-timing clock signal in the alternating magnetic field" sets forth a step for reaching a particular result but does not disclose a specific technique or procedure for achieving the result.

It follows that the element at issue, in accordance with case law, should be considered to be a step-plus-function claim limitation subject to 35 U.S.C. § 112, ¶ 6.

Appellee misinterprets Appellants' *In re Donaldson Co.* analysis (which begins midway through page 30 of Appellants' Brief) as a continuing argument by Appellants as to why the element at issue should be considered to be a step-plus-function claim limitation subject to 35 U.S.C. § 112, ¶ 6:

"The existence of structure that performs the recited step simply sheds no light on whether the limitation invokes section 112, paragraph 6."

Appellee's Brief, p. 28.

Appellants point out in their analysis (Appellants' Brief, pp. 30-31) that an *In re Donaldson Co.* analysis comes to the same conclusion as a straightforward analysis of the words of the claim. Carroll et al. does not disclose the "embedding a bit-timing clock signal in the alternating magnetic field" limitation of claim 70 and did not anticipate claim 70.

Appellee observed (Appellee's Brief, p. 29) that "Beigel spends much of his step-plus-function argument analyzing Judge Rader's concurring opinion in *Seal-Flex Inc. v. Athletic Track and Court Construction*, 172 F.3d 836, 50 U.S.P.Q.2d 1225 (Fed. Cir. 1999). Since this case provided the basis for the Board's conclusions that the elements of claims 70, 71, and 75 are not step-plus-function elements and therefore do not invoke 35 U.S.C. § 112, ¶ 6, it was inevitable that this case would occupy central stage in Appellants' "step-plus-function" arguments.

The *Seal-Flex* case was introduced by the Board in its Decision on Appeal (A16-A17). Appellants' pointed out in the Request for Rehearing that the Board had misread Judge Rader's opinion and that the claim elements at issue were indeed step-plus-function elements subject to 35 U.S.C. § 112, ¶ 6. A676-A678. The Board dismissed Appellants three-page argument with essentially a single sentence:

"We find no basis for Appellants' assertion that the method steps of claims 70, 71, and 75 are analogous to the step of "adhering the mat to the foundation" which Judge Rader's opinion in the *Seal-Flex* case suggested would set forth a function which would be governed by the sixth paragraph of 35 U.S.C. § 112." A41.

The Board's conclusion expressed in this single sentence is incorrect and in addition this single sentence does not address the main thrust of Appellants'

argument which can be found in Appellants' Brief, pp. 31-34.

Appellee has chosen not to respond to Appellants' *Seal-Flex* arguments. Instead, Appellee suggests that "a significant burden is placed on the claim drafter 'to choose language with a definite and clear meaning' ", citing Judge Rader. Appellee's Brief, p. 29.

APPELLEE'S BRIEF V(C) (pp. 30-31)

Appellee's argument simply repeats the arguments of the Examiner and the Board. Please see Appellants' Brief, pp. 56-60 for an explanation as to why Carroll et al.'s Manchester-encoded PSK is not a teaching of Appellants' claim-57 limitation.

It is appropriate to reproduce at this point the paragraph on page 60 of Appellants' Brief:

"Carroll et al. does not disclose the limitation of claim 57. Even if Carroll et al. had disclosed the limitation, the examiner has not presented any arguments as to why a person skilled in the art would be motivated to incorporate the claim-57 means for communicating data from a tag to a reader into the Carroll et al. invention."

The Examiner, the Board, and now the Appellee have NOT addressed the fact that there would be no motivation for a person skilled in the art to substitute Appellants' claim-57 modulation technique for the Manchester-encoded PSK technique utilized by Carroll et al.'s invention, motivation being an essential element in concluding obviousness.

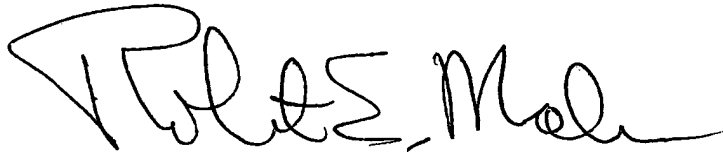
CONCLUSIONS

Appellee has chosen to argue the disclosure by Carroll et al. of only two of the six limitations that distinguish the appealed claims from Carroll et al.'s invention. Instead of arguing the disclosure of the key limitation *reader embedding a bit-timing clock signal in the alternating magnetic field*, Appellee chose to argue that there is a bit-timing clock signal originating with the tag and that there is no limitation in the claims requiring the bit-timing clock signal to originate with the reader. Appellee's argument has no relevance as to whether Carroll et al. discloses a *reader embedding a bit-timing clock signal (REGARDLESS OF ITS ORIGIN) in the alternating magnetic field*.

Appellee fails to address in any meaningful way Appellants' arguments as to the other issues of this appeal such as the obviousness of claims 47, 56, and 57, whether the preamble limitations should be treated in the same way as body limitations, and whether the method claims invoke § 112, ¶ 6.

The Court is respectfully requested to reverse the decision of the Board of Patent Appeals and Interferences and hold that claims 70, 71, and 75 are patentable over Carroll et al. (Pat. No. 5,517,194) under 35 U.S.C. § 102(e) and that claims 47, 56, and 57 are patentable over Carroll et al. (Pat. No. 5,517,194) under 35 U.S.C. § 103(a).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "R. E. Malm", written over a horizontal line.

ROBERT E. MALM
ATTORNEY FOR APPELLANTS

16624 Pequeno Place
Pacific Palisades, California

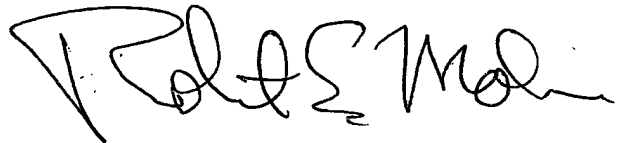
Telephone: 310 573 1781

June 8, 2007

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I hereby certify that on June 11, 2007, I caused two copies of the foregoing document to be mailed by first class mail, postage prepaid, to the attorneys for appellee NATHAN K. KELLEY and THOMAS W. KRAUSE at OFFICE OF THE SOLICITOR, P.O. Box 15667, Arlington, Virginia 22215.

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A handwritten signature in black ink, appearing to read "R. E. Malm". The signature is stylized with a large initial "R" and a long horizontal stroke extending to the right.

Robert E. Malm, Esq.
16624 Pequeno Place
Pacific Palisades, CA 90272
310-573-1781

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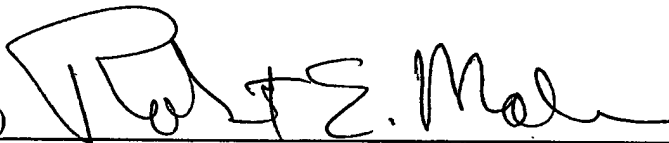
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